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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

August 8, 1994

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Mr. Steve Wisness, Acting Program Manager
U.S. Department of Energy
P.O. Box 550
Richland, WA 99352

Mr. R.E. Lerch, Deputy Director
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Messrs. Wisness and Lerch:

This letter formally transmits to the U.S. Department of Energy (USDOE) and Westinghouse Hanford Company (WHC) the Notice of Deficiency (NOD) generated by the Washington State Department of Ecology (Ecology) in review of Chapter Five, Groundwater Monitoring of the 216- B-3 Expansion Ponds Closure Plan.

Issuing a NOD for only one chapter of a closure plan is not typical protocol. The closure plan originally submitted for review contained an obsolete version of Chapter Five. A NOD regarding the closure plan originally submitted was issued June 6, 1994.

If you have any questions feel free to call me at (509) 736-3019.

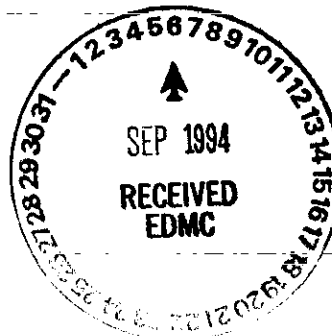
Sincerely,

Jeanne Wallace, B Pond Unit Manager
Nuclear Waste Program

JW:sl
Enclosure

cc: Cliff Clark, USDOE
Roger Bowman, WHC
Sue Price, WHC
Fred Ruck, III, WHC
Dan Duncan, EPA
Administrative Records:

216-B-3 Expansion Ponds
216-B-3 Main Pond/200-BP-11 Operable Unit



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**216-B-3 Pond Expansion Ponds Closure Plan
Chapter 5, Groundwater Monitoring
Round 2, Review
August 1994**

NOTE: The phrase "Annual Groundwater Report" is an abbreviated reference to the *Annual Report for RCRA Groundwater Monitoring Projects at Hanford Site Facilities for 1993*, prepared by the Westinghouse Hanford Company, Environmental Division's Geosciences Group, February 1994.

1. 5-1, 9 The separations area depicted in Figure 5-1 includes the B Pond system. The text states that the Expansion Ponds are east of the separations area.

Modify text to state that the Expansion Ponds are located within the eastern portion of the separations area or modify Figure 5-1.
2. 5-1, 10 It is recommended that it be indicated at this point that the B Pond system consists of two RCRA TSDs.
3. 5-1, 21 Dividing the B Pond system into two TSDs will not allow clean closure of the Expansion Ponds. Having separate Part A, Form 3's will make clean closure a viable option to be pursued for the Expansion Ponds. Separating the TSD into two units has little impact on integration of the TSD and the past-practice unit.

Modify text accordingly.
4. 5-1, 25 The term "clean" is not descriptive. Stipulate if the vadose zone analytical data verify that dangerous waste or dangerous waste constituents or residues do not exceed levels specified in WAC 173-303-610(2)(b)(i) and (ii).
5. 5-1, 26-32 This section of the closure plan describes the TPA designation of the groundwater operable units located under the B Pond system. The following information must be addressed in the closure plan in regard to the contaminated groundwater plume.

The TPA, section 5.5, states "past-practice authority may provide the most efficient means for addressing mixed-waste groundwater contamination plumes originating from a combination of TSD and past-practice units. However, in order to ensure that TSD units within the operable units are brought into compliance with RCRA and state hazardous waste regulations,

Ecology intends, subject to part four of the Agreement, that all remedial or corrective actions . . . will be conducted in a manner which ensures compliance with the technical requirements of the HWMA (Chapter 70.105 RCW and its implementation regulations). In any case, the parties agree that CERCLA remedial actions, and as appropriate HSWA corrective actions will comply with ARARS."

The TPA, section 6.3.1, states "any demonstration for clean closure of a disposal unit . . . must include *documentation* that *groundwater* and soils have not been adversely impacted by that TSD group/unit, *as described in 173-303-645 WAC.*"

The TPA, section 6.3.2, states "the radionuclide component of the waste will be addressed as part of the closure action." Therefore, the tritium plume shall be addressed in this unit or the Main Pond closure plans.

For this unit to be considered for clean closure, there must be an explicit commitment in the closure plan that the groundwater will be addressed in a timely manner by all applicable regulations (i.e., WAC 173-303, 40 CFR 270.1).

6. 5-2, 21 The closure plan states that assessment-level monitoring was initiated in 1990. The Annual Groundwater Report, 216-B-3 Pond System section, states the B Pond system was elevated to assessment-level monitoring due to elevated concentrations of TOX in well 699-43-41E, and that during 1990 well 699-43-41F also exhibited high concentrations of total organic halogen (TOX) and total organic carbon (TOC).

Verify and modify text accordingly. In addition, explain the regulatory drivers for, or refer to the section that explains initiating assessment-level monitoring.
7. 5-2, 30 Confirm that documents cited in the closure are incorporated into the Administrative Record file for the 216-B-3 Expansion Ponds.
8. 5-2, 44 Confirm that documents cited in the closure are incorporated into the Administrative Record file for the 216-B-3 Expansion Ponds.
9. 5-3, 3 The text states that 25 wells are included the monitoring network. Twenty two wells were located in Figure 5-4, plus 2 background wells not shown in the figure, equals 24 wells.

Confirm number of wells and/or modify text accordingly.

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10. 5-3, 23 The water table map provided in Figure 5-5 does not substantiate the location of the background wells (outside the influence of the groundwater mound).
Provide text to elaborate on rationale.
11. 5-3, 43 The adequacy of the monitoring network must be assessed prior to closure.
12. 5-5, 43 Neither the closure plan nor the Annual Groundwater Report, do not clarify why the five down gradient wells discussed here are sampled at a different interval than the remaining down gradient wells.

The discussion provided here is not consistent with the Annual Groundwater Report, Table 4.5-1, which lists only four down gradient wells are sampled semiannually.

Verify the number of down gradient monitoring wells sampled semiannually and explain why wells are sampled at different intervals.

Explain the reason and the significance of initiating quarterly groundwater sampling and analysis.

Unable to locate well 699-42-40 on Figure 5-4.
13. 5-5, 50 Title 40 Code of Federal Regulations (CFR) Part 265.93 require a groundwater monitoring program capable of determining; whether hazardous waste or hazardous waste constituents have entered the groundwater, the rate and extent of migration, and the concentration of 5-6, 340 contaminants in the groundwater.

Sampling and analysis for 40 CFR 264, Appendix IX, and WAC 173-303-9905 lists must be conducted prior to closure of the TSD unit and must be conduct at a frequency which will allow statistical evaluation of the results.

In addition, the Annual Groundwater Report states that all wells in the network have now been sampled for Appendix IX constituents at least once, including the wells shared with W-049 TEDB. The report makes no reference to WAC 173-303-9905 constituents.

Verify the analyte list and revise the closure plan accordingly. Determine if any wells have been, or are planned to be, resampled and analyzed for Appendix IX constituents. Summarize any contaminants detected from this analysis.

14. 5-7, 3 The Annual Groundwater Report addresses the detection of TOX contaminants in various B Pond monitoring wells, but it does not identify total organics as a site specific parameter (table 4.5-2 report). This is inconsistent with the text provided in the closure plan.
- Verify parameters and/or modify text if necessary.
15. 5-7, 7 The closure plan states that Appendix IX and WAC 173-303-9905 constituents have been sampled and analyzed. The Annual Groundwater Report states that all wells in the network have now been sampled for Appendix IX constituents at least once, including the wells shared with W-049 TEDB. The report makes no reference to WAC 173-303-9905 constituents.
- Verify analyte list and/or revise the closure plan accordingly.
16. 5-8, 1, Document format is inconsistent on this page. This comment is in reference to the second line 1 of this page. Secondary Maximum Contaminant Levels in 40 CFR 143 is cited here in the discussion of Manganese and Iron. This is not consistent with the Groundwater Report (p. 4.5-8,9,12), which cites 40 CFR 265.92, which refers only to Appendix III, Primary Drinking Water Standards.
17. 5-8, 5 Document format is inconsistent on this page. The comment is in reference to the second line 5. The Annual Groundwater Report, Drinking Water parameters presented list silvex cadmium, not cadmium, as an analyte. This is not consistent with the Appendix III of 40 CFR 265, Interim Primary Drinking Water Standards, which lists cadmium.
- According to Hawley's Condensed Chemical Dictionary, Silvex is defined as a restricted use herbicide and plant growth regulator. No association with cadmium is indicated, nor is cadmium a component of the compound.
- Verify if cadmium is being analyzed as a drinking water parameter. If indeed Silvex cadmium is the analyte, explain why cadmium D006 is not a site specific parameter due to the fact that it is listed on the Part A, Form 3, for the Expansion Ponds.
18. 5-8, 29 This paragraph addresses the source of the tritium contaminating the underlying aquifer. The closure states "the shape of the plume through time indicates that the 216-B-3 Pond also contributed." There is no discussion of the Expansion Ponds contribution. This leaves one to speculate if Expansion Ponds contributed to the tritium plume or not.

Modify the text to explain the Expansion Ponds contribution to the tritium plume. In addition, if it is presented that the Expansion Ponds did not contribute to the plume, address the presence of the plume under the Expansion Ponds and the continued detection of tritium in the monitoring wells surrounding the Expansion Ponds (see Annual Groundwater Report p. 4.5-11).

Note: The TPA, section 6.3.2, states "the radionuclide component of the waste will be addressed as part of the closure action." Therefore, the tritium plume will be addressed.

19. 5-11, 37 Explain how it has been determined that clean closure is possible for the Expansion Ponds despite the fact that TOX and TOC hits, which initiated assessment monitoring, were detected in monitoring wells located adjacent to the Expansion Ponds.

Again, the contribution of the Expansion Ponds has not been addressed.

Modify text accordingly.

20. 5-19, 11 The reference to Figure 5-12 is incorrect. The information is discussed in Figure 5-13, not Figure 5-12.

Revise text accordingly.

21. 5-21, 17 The reference to Figure 5-12 is incorrect. The information is discussed in Figure 5-13, not Figure 5-12.

Revise text accordingly.

22. 5-24, 34 Well 699-43-45 is not located in Figure 5-4. Please verify its location and modify Figure 5-4 to incorporate, or modify text to explain why it is not included in Figure 5-4.

23. 5-25, 29 Well 699-43-32K is not located in Figure 5-4. Please verify its location and modify Figure 5-4 to incorporate, or modify text to explain why it is not included in Figure 5-4.

24. 5-27, 33 This paragraph addresses the tritium plume associated with the separations area. There is no discussion of the Expansion Ponds contribution to the contamination. This leaves one to speculate if Expansion Ponds contributed or not.
- Modify the closure to address the Expansion Ponds contribution to the tritium plume. In addition, if it is presented that the Expansion Ponds did not contribute to the plume, explain the presence of the plume in the aquifer under the Expansion Ponds and the continued detection of tritium in the monitoring wells surrounding the Expansion Ponds (see ground water report p. 4.5-11).
- Note: The TPA, section 6.3.2, states "the radionuclide component of the waste will be addressed as part of the closure action." Therefore, the tritium plume will be addressed.
25. 5-28, 5 Well 699-42-40C is not located in Figure 5-4. Please verify its location and modify Figure 5-4 to incorporate, or modify text to explain its location and why it is not included in Figure 5-4.
26. 5-28, 15 In addition to the text provided, address the tritium plume located under the Expansion Ponds.
27. 5-28, 26 In addition to the text provided, address the tritium and other contaminants detected under the Expansion Ponds.

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Author	Addressee	Correspondence No.
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Subject: TRANSMITTAL OF THE 216-B-3 EXPANSION POND CLOSURE PLAN NOTICE OF DEFICIENCY RESPONSE TABLE		

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